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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,057	12/04/2003	Hajime Kimura	12732-186001 / US6794	8774
26171	7590	11/29/2004	EXAMINER	
FISH & RICHARDSON P.C. 1425 K STREET, N.W. 11TH FLOOR WASHINGTON, DC 20005-3500			NGUYEN, KHAI M	
			ART UNIT	PAPER NUMBER
			2819	

DATE MAILED: 11/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/727,057	<b>Applicant(s)</b> KIMURA, HAJIME	
	<b>Examiner</b> Khai M. Nguyen	<b>Art Unit</b> 2819	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 December 2003.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15, 17-24, 26 and 28 is/are rejected.
- 7) ☒ Claim(s) 16, 25, 27 and 29 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 June 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/04/03 &amp; 06/01/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Specification*

1. The application has not been checked to the extent necessary to determine the presence of all possible typographical and grammatical errors. However, Applicant's cooperation is requested in correcting any errors of which he/she may become aware in the application.

### *Drawings*

2. Figures **32-34** should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Priority*

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Claim Rejections - 35 USC § 112*

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 15 recites the limitation "the intermediary..." in line 11. There is insufficient antecedent basis for this limitation in the claim. Correction is required.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2, 5-8, 11-14, 19-21, and 24-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsusaka (US 6,498,575 B2).

Regarding claim 1, Matsusaka discloses a semiconductor device (Figs. 1-2, for example) comprising: several pieces of current sources ( $k \times I$  currents); and a switching circuit (504 – column 7, lines 54-64) including: a plurality of input terminals (71-72, see Fig. 2 for an example of the switching circuit 504); and a plurality of output terminals (75-76, see Fig. 2) wherein the current sources ( $k \times I$  currents) and the output terminals of the switching circuit are electrically connected to each other (according to selection signals as seen in Figs. 1-2), and the switching circuit (504) selects the output terminals (75-76) to be connected to the input terminals (71-72) by using signals which are input to the input terminals of the switching circuit.

Regarding claim 2, Matsusaka discloses the switching circuit (504) of claim 1 which is controlled, in addition to the selection signals, by external/bias signals (78 of Fig. 5, 77 of Fig. 7, and 79-80 of Fig. 8).

Regarding claims 5-6, Matsusaka discloses a semiconductor device (see the drawings), including: m-pieces of current sources ( $k \times I$  currents); and switching circuit (including a plurality of switching circuits 504) including n-pieces of input terminals (71-72) and m-pieces of output terminals (75-76), wherein the m-pieces of the current sources are each connected to one of the different output terminals (see Fig. 1, for example), at least one of the input terminals of the switching circuit is connected to one or a plurality of switches (when one of the transistors 73 or 74 is ON), the switch is connected to one of the m-pieces of the output terminals (75-76), and the switching circuit (504) controls ON/OFF of the switch (the transistor 73 and/or 74) by using a signal(s) (either SEL1 or SEL2) which is input from at least one of the n-pieces of the input terminals (71-72).

Regarding claims 7 and 20, Matsusaka discloses the switching circuit (of claim 5) controls ON/OFF of the switching circuit by further using a signal, which is input externally (78 of Fig. 5, 77 of Fig. 7, and 79-80 of Fig. 8).

Regarding claims 8, 19, 21, and 24-25, Matsusaka's switching circuit includes a digital circuit (501-502; 602-603; 12-13; and logic gate 26 – see Figs. 1, 4, 6, 10, and 11, respectively).

Regarding claims 11-12, Matsusaka's apparatus is a DAC (see the title) for converting a plurality of input bits (500) into an analog signal (to output terminals 509-510, see Fig. 1), comprising: m-pieces of current sources ( $k \times I$  currents); and a switching circuit (501, 502, 504) including a plurality of input terminals (71-72) and output terminals (75-76), wherein the current sources/paths are each connected to one

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of the different output terminals (75 or 76), and the switching circuit selects an output terminal to be connected to input terminals by using input digital voltages (D0...Dn) and signals input externally (78 of Fig. 5, 77 of Fig. 7, and 79-80 of Fig. 8).

Regarding claims 13-14, these claims are rejected for the same reason above.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3-4, 9-10, 18-19, 22-23, and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsusaka (US 6,498,575 B2) in view of Gu (US 6,525,683). Matsusaka discloses every aspect of the claimed invention of the above claimed except for the display/electronic apparatus as recited in the above claims. Gu discloses a display (Figs. 1A, 3B, and 5) and/or an electronic apparatus that includes the same type of semiconductor device of the claimed invention (i.e., current steering digital-to-analog convert for controlling/providing current to a display devices – see column 1, lines 49-55) (see Fig. 5). Therefore, the inclusion of the semiconductor as taught/suggested by Matsusaka in a/an display/electronic apparatus as suggested by Gu would have been obvious to one skilled person in the relevant art because it is capable of providing a desired electrical current to a selected pixel(s) of the display device (see column 1, lines 49+).

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***Allowable Subject Matter***

9. Claims 16, 25, 27, and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Prior Art***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure (see the attached PTO-892).

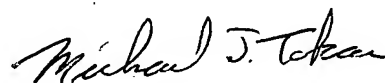
***Contact Information***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khai M. Nguyen whose telephone number is 571-272-1809. The examiner can normally be reached on 8:30 to 5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael J Tokar can be reached on 571-272-1812. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KN  
November 22, 2004



**Michael Tokar**  
Supervisory Patent Examiner  
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